

# TRANSMITTAL FORM

Application Serial Number	10/643,752
Filing Date	August 19, 2003
First Named Inventor	Liu
Group Art Unit	1637
Examiner Name	Jezia Riley
Attorney Docket No.	LS5-001
Patent No.	Not applicable
Issue Date	Not applicable

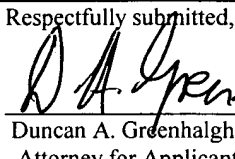
## ENCLOSURES (check all that apply)

<input type="checkbox"/> Fee Transmittal Form <input type="checkbox"/> Check Attached <input type="checkbox"/> Copy of Fee Transmittal Form	<input type="checkbox"/> Copy of Notice to File Missing Parts of Application <input type="checkbox"/> Formal Drawing(s)	<input type="checkbox"/> Notice of Appeal to Board of Patent Appeals and Interferences
<input type="checkbox"/> Amendment/Response <input type="checkbox"/> Preliminary <input type="checkbox"/> After Final <input type="checkbox"/> Affidavits/declaration(s) <input type="checkbox"/> Letter to Official Draftsperson including Drawings [Total Sheets _____]	<input type="checkbox"/> Request For Continued Examination (RCE) Transmittal <input type="checkbox"/> Power of Attorney (Revocation of Prior Powers) <input type="checkbox"/> Terminal Disclaimer	<input type="checkbox"/> Appeal Brief (in triplicate) <input type="checkbox"/> Status Inquiry <input checked="" type="checkbox"/> Return Receipt Postcard <input checked="" type="checkbox"/> Certificate of First Class Mailing under 37 C.F.R. 1.8 <input type="checkbox"/> Certificate of Facsimile Transmission under 37 C.F.R. 1.8
<input type="checkbox"/> Petition for Extension of Time	<input type="checkbox"/> Executed Declaration and Power of Attorney for Utility or Design Patent Application	<input type="checkbox"/> Additional Enclosure(s) (please identify below)
<input checked="" type="checkbox"/> Information Disclosure Statement (3 pgs.) <input checked="" type="checkbox"/> Form PTO-1449 <input checked="" type="checkbox"/> Copies of IDS Citations (B1-B33; C1-C217)	<input type="checkbox"/> Small Entity Statement <input type="checkbox"/> CD(s) for large table or computer program	
<input type="checkbox"/> Certified Copy of Priority Document(s)	<input type="checkbox"/> Amendment After Allowance	
<input type="checkbox"/> Sequence Listing submission <input type="checkbox"/> Paper Copy/CD <input type="checkbox"/> Computer Readable Copy <input type="checkbox"/> Statement verifying identity of above	<input type="checkbox"/> Request for Certificate of Correction <input type="checkbox"/> Certificate of Correction (in duplicate)	

## CORRESPONDENCE ADDRESS

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## SIGNATURE BLOCK

Respectfully submitted,  
  
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Date: May 6, 2005  
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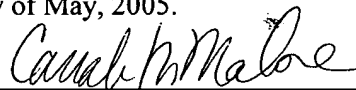
PATENT  
Attorney Docket No. LS5-001

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICANT(S): Liu *et al.*  
SERIAL NO.: 10/643,752 GROUP NO.: 1637  
FILING DATE: August 19, 2003 EXAMINER: Jezia Riley  
TITLE: Evolving New Molecular Function

**CERTIFICATE OF FIRST CLASS MAILING UNDER 37 C.F.R. 1.8**

I hereby certify that this correspondence, and any document(s) referred to as enclosed herein, is/are being deposited with the United States Postal Service as first class mail, postage prepaid, in an envelope addressed to Mail Stop Amendment, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450 on this 6th day of May, 2005.

  
Carrah M. Malone

Mail Stop Amendment  
Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

Sir:

Submitted herewith is/are:

1. Transmittal Form (1 page);
2. Information Disclosure Statement (3 pages);
3. Copies of cited References B1-B33 and C1-C217;
4. Form PTO 1449 (13 pages); and
5. Return receipt postcard.

VER 9/00



*JFW*

PATENT  
Attorney Docket No. LS5-001

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICANT(S):      Liu *et al.*                      CONF. NO.:              4082  
SERIAL NO.:          10/643,752                      GROUP NO.:              1637  
FILING DATE:        August 19, 2003              EXAMINER:              Jezia Riley  
TITLE:                      Evolving New Molecular Function

Mail Stop Amendment  
Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

**INFORMATION DISCLOSURE STATEMENT**

Sir:

In accordance with the provisions of 37 C.F.R. 1.97 and 1.98, Applicants hereby make of record the patents and publications listed on the accompanying Form PTO-1449, and other information contained herein, for consideration by the Examiner in connection with the examination of the above-identified patent application. An International Search Report for International Patent Application No. PCT/US02/08546, an International Search Report for International Patent Application No. PCT/US03/25984, and a Supplemental European Search Report for Patent Application No. EP02753671 are cited under C93, C94 and C191, respectively. In accordance with 37 C.F.R. 1.98(a)(2), only copies of the foreign patent documents and non-patent publications are enclosed.

In addition, Applicants wish to inform the Examiner about the following U.S. patent applications and the contents of their file wrappers, including all Office actions issued therein:

1. U.S.S.N. 10/101,030, entitled "Evolving New Molecular Function," filed on March 19, 2002, and published as 2003/0113738, on June 19, 2003;
2. U.S.S.N. 10/744,605, entitled "Evolving New Molecular Function," filed on December 23, 2003, and published as 2005/0025766, on February 3, 2005;
3. U.S.S.N. 10/949,162, entitled "Evolving New Molecular Function," filed on September 24, 2004, and published as 2005/0042669, on February 24, 2005;
4. U.S.S.N. 10/949,163, entitled "Evolving New Molecular Function," filed on September 24, 2004; and

5. U.S.S.N. 10/950,367, entitled "Evolving New Molecular Function," filed on September 24, 2004.

**REMARKS**

In accordance with the provisions of 37 C.F.R. 1.97, this statement is being filed (CHECK ONE):

- ☒ (1) within three (3) months of the **filing date** of a national application other than a continued prosecution application under 37 C.F.R. 1.53(d), or within three (3) months of the **date of entry of the national stage** as set forth in 37 C.F.R. 1.491 in an international application, or before the mailing of the **first Office action** on the merits, or before the mailing of a **first Office action** after the filing of a request for continued examination under 37 C.F.R. 1.114; or
- ☐ (2) after the period defined in (1) but before the mailing date of a **final action** or a **notice of allowance** under 37 C.F.R. 1.311, and
- ☐ the requisite Statement is below, **OR**
- ☐ the requisite fee under 37 C.F.R. 1.17(p), namely **\$180.00**, is included herein, or
- ☐ (3) after the mailing date of a **final action** or **notice of allowance** but before the payment of the **issue fee**, **AND**
- ☐ the requisite Statement is below, **AND**
- ☐ the requisite petition fee under 37 C.F.R. 1.17(p), namely **\$180.00** is included herein.

It is respectfully requested that each of the patents and publications listed on the attached Form PTO-1449, and other information contained herein, be made of record in this application.

**STATEMENT**

As required under 37 C.F.R. 1.97(e), Applicant(s), through the undersigned, hereby state either that [check the appropriate space only if either (2) or (3) is checked on the previous page and the Statement is required]:

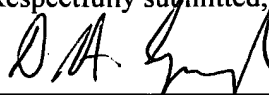
- ☐ 1. Each item of information contained in the Information Disclosure Statement was first cited in any communication from a foreign patent office in a counterpart foreign application **not more than three months** prior to the filing of the Information Disclosure Statement; or

- ☐ 2. No item of information contained in the Information Disclosure Statement was cited in a communication from a foreign patent office in a counterpart foreign application, and, to the knowledge of the person signing this Statement after making reasonable inquiry, no item of information contained in the Information Disclosure Statement was known to **any individual** designated in 37 C.F.R. 1.56(c) **more than three months** prior to the filing of the Information Disclosure Statement.

Date: May 6, 2005  
Reg. No. 38,678

Tel. No.: (617) 570-1299  
Fax No.: (617) 523-1231  
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Respectfully submitted,



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Boston, Massachusetts 02109  
Customer No. 051414



<b>FORM PTO - 1449</b> <b>INFORMATION DISCLOSURE STATEMENT</b>				ATTORNEY DOCKET NO.: LS5-001 APPLICANT(S): Liu <i>et al.</i> SERIAL NO.: 10/643,752 FILING DATE: August 19, 2003 GROUP: 1637			
<b>U.S. PATENT DOCUMENTS</b>							
EXAM. INIT.	DOCUMENT NUMBER	DATE	NAME	CLASS	SUB CLASS	FILING DATE IF APPROPRIATE	
	A1	2001/0036638 A1	11/1/01	Nolan <i>et al.</i>			
	A2	2002/0034757 A1	3/21/02	Cubiciotti			
	A3	2002/0038000 A1	3/28/02	Gold <i>et al.</i>			
	A4	2002/0064798 A1	5/30/02	Nolan <i>et al.</i>			
	A5	2003/0104389	6/5/03	Sergeev			
	A6	2003/0113738 A1	6/19/2003	Liu <i>et al.</i>			
	A7	2003/0143561 A1	7/31/03	Pedersen <i>et al.</i>			
	A8	2004/0014090 A1	1/22/2004	Neri <i>et al.</i>			
	A9	2005/0025766 A1	2/3/2005	Liu <i>et al.</i>			
	A10	2005/0042669 A1	2/24/2005	Liu <i>et al.</i>			
	A11	4,683,202	7/28/87	Mullis			
	A12	4,863,857	9/5/89	Blalock <i>et al.</i>			
	A13	5,162,218	11/10/92	Schultz			
	A14	5,270,170	12/14/93	Schatz <i>et al.</i>			
	A15	5,539,082	7/23/96	Nielsen <i>et al.</i>			
	A16	5,547,835	8/20/96	Köster			
	A17	5,559,000	9/24/96	Janda <i>et al.</i>			
	A18	5,573,905	11/12/96	Lerner <i>et al.</i>			
	A19	5,574,141	11/12/96	Seliger <i>et al.</i>			
	A20	5,597,697	1/28/97	Diamond			
	A21	5,605,798	2/25/97	Köster			
	A22	5,622,824	4/22/97	Köster			
	A23	5,639,603	6/17/97	Dower <i>et al.</i>			
<b>EXAMINER</b>				<b>DATE CONSIDERED</b>			

<b>FORM PTO - 1449</b>				<b>ATTORNEY DOCKET NO.: LS5-001</b>			
<b>INFORMATION DISCLOSURE STATEMENT</b>				<b>APPLICANT(S): Liu <i>et al.</i></b>			
				<b>SERIAL NO.: 10/643,752</b>			
				<b>FILING DATE: August 19, 2003 GROUP: 1637</b>			
	A24	5,677,195	10/14/97	Winkler <i>et al.</i>			
	A25	5,691,141	11/25/97	Köster			
	A26	5,698,685	12/16/97	Summerton <i>et al.</i>			
	A27	5,708,153	1/13/98	Dower <i>et al.</i>			
	A28	5,719,262	2/17/98	Buchardt <i>et al.</i>			
	A29	5,721,099	2/24/98	Still <i>et al.</i>			
	A30	5,723,598	3/3/98	Lerner <i>et al.</i>			
	A31	5,770,358	6/23/98	Dower <i>et al.</i>			
	A32	5,786,461	7/28/98	Buchardt <i>et al.</i>			
	A33	5,789,160	8/4/98	Eaton <i>et al.</i>			
	A34	5,789,162	8/4/98	Dower <i>et al.</i>			
	A35	5,811,238	9/22/98	Stemmer <i>et al.</i>			
	A36	5,840,485	11/24/98	Lebl <i>et al.</i>			
	A37	5,843,701	12/1/98	Gold <i>et al.</i>			
	A38	5,846,839	12/8/98	Gallop <i>et al.</i>			
	A39	5,851,765	12/22/98	Köster			
	A40	5,872,003	2/16/99	Köster			
	A41	5,922,545	7/13/99	Mattheakis <i>et al.</i>			
	A42	5,958,691	9/28/99	Pieken <i>et al.</i>			
	A43	5,958,703	9/28/99	Dower <i>et al.</i>			
	A44	5,986,053	11/16/99	Ecker <i>et al.</i>			
	A45	5,998,140	12/7/99	Dervan <i>et al.</i>			
	A46	6,037,120	3/14/00	Brenner			
	A47	6,037,120	3/14/00	Brenner			
	A48	6,060,596	5/9/00	Lerner <i>et al.</i>			
	A49	6,074,823	6/13/00	Köster			
	A50	6,080,826	6/27/00	Grubbs <i>et al.</i>			
<b>EXAMINER</b>				<b>DATE CONSIDERED</b>			

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	A51	6,127,154	10/3/00	Mosbach <i>et al.</i>			
	A52	6,140,053	10/31/00	Köster			
	A53	6,140,493	10/31/00	Dower <i>et al.</i>			
	A54	6,140,496	10/31/00	Benner			
	A55	6,143,497	11/7/00	Dower <i>et al.</i>			
	A56	6,165,717	12/26/00	Dower <i>et al.</i>			
	A57	6,175,001	1/16/01	Barbas <i>et al.</i>			
	A58	6,194,144	2/27/01	Köster			
	A59	6,194,550	2/27/01	Gold <i>et al.</i>			
	A60	6,207,446	3/27/01	Szostak <i>et al.</i>			
	A61	6,214,553	4/10/01	Szostak <i>et al.</i>			
	A62	6,225,450	5/1/01	Köster			
	A63	6,238,871	5/29/01	Köster			
	A64	6,287,765	9/11/01	Cubiccioni			
	A65	6,291,160	9/18/01	Lerner <i>et al.</i>			
	A66	6,291,161	9/18/01	Lerner <i>et al.</i>			
	A67	6,368,874	4/9/02	Gallop <i>et al.</i>			
	A68	6,436,635	8/20/02	Fu <i>et al.</i>			
	A69	6,607,878	8/19/02	Sorge			
	A70	6,680,192	1/20/04	Lerner <i>et al.</i>			

FOREIGN PATENT DOCUMENTS									
EXAM. INIT.		DOCUMENT NUMBER	DATE	COUNTRY CODE	CLASS	SUB CLASS	FILING DATE	ABSTRACT ONLY	ENGLISH LANG (Y/N)
	B1	EP 0 324 616 A	7/19/89	EP					
	B2	WO 91/05058	4/18/91	PCT					
	B3	WO 92/02536	2/20/92	PCT					
	B4	WO 93/06121	4/1/93	PCT					

<b>EXAMINER</b>	<b>DATE CONSIDERED</b>
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					<b>SERIAL NO.: 10/643,752</b>				
					<b>FILING DATE: August 19, 2003 GROUP: 1637</b>				
	B5	WO 96/09316	9/19/95	PCT					
	B6	DE 196 46 372 C1	11/9/96	DE					
	B7	EP 0 604 552	2/12/97	EP					
	B8	EP 0 773 227	5/14/97	EP					
	B9	WO 00/23458	4/27/00	PCT					
	B10	EP 0 643 778	5/31/00	EP					
	B11	WO 00/47775	8/17/00	PCT					
	B12	WO 00/61775	10/19/00	PCT					
	B13	WO 02/102820	12/27/02	PCT					
	B14	WO 02/103008	12/27/02	PCT					
	B15	WO 03/078050	9/25/2003	PCT					
	B16	WO 03/078445	9/25/03	PCT					
	B17	WO 03/078446	9/25/03	PCT					
	B18	WO 03/078625	9/25/03	PCT					
	B19	WO 03/078626	9/25/03	PCT					
	B20	WO 03/078627	9/25/03	PCT					
	B21	WO 03/082901	10/9/03	PCT					
	B22	WO 04/001042	12/31/03	PCT					
	B23	WO 04/013070	2/12/04	PCT					
	B24	WO 04/024929	3/25/04	PCT					
	B25	WO 04/039825	5/13/04	PCT					
	B26	WO 04/056994	7/8/04	PCT					
	B27	WO 04/074429	9/2/04	PCT					
	B28	WO 04/074501	9/2/04	PCT					
	B29	WO 04/083427	9/30/04	PCT					
	B30	WO 04/110964	12/23/04	PCT					
	B31	WO 05/003778	1/13/05	PCT					
<b>EXAMINER</b>					<b>DATE CONSIDERED</b>				

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	B32	WO 02/074929 A2	9/26/02	PCT					
	B33	WO 04/016767	2/26/04	PCT					
<b>OTHER ART, JOURNAL ARTICLES, ETC.</b>									
<b>EXAM. INIT.</b>	<b>OTHER DOCUMENTS: (Including Author, Title, Date, Relevant Pages, Place of Publication)</b>								
	C1	Acevedo <i>et al.</i> , "Non-Enzymatic Transcription of an Oligodeoxynucleotide 14 Residues Long" <i>J. Mol. Biol.</i> 197: 187-193 (1987)							
	C2	Alvarez <i>et al.</i> , "Photocleavable Protecting Groups as Nucleobase Protections Allowed the Solid-Phase Synthesis of Base-Sensitive SATE-Prooligonucleotides" <i>J. Org. Chem.</i> 64: 6319-6328 (1999)							
	C3	Anderson <i>et al.</i> , "A Comparison of Selected mRNA and Protein Abundances in Human Liver" <i>Electrophoresis</i> 18: 533-537 (1997)							
	C4	Arap <i>et al.</i> , "Steps Toward Mapping the Human Vasculature by Phage Display" <i>Nat. Med.</i> 8(2) 121-127 (2002)							
	C5	Arnold <i>et al.</i> , "Directed Evolution of Biocatalysts" <i>Curr. Opin. Chem. Biol.</i> 3: 54-59 (1999)							
	C6	Arnold <i>et al.</i> , "Design by Directed Evolution" <i>Acc. Chem. Res.</i> 31: 125-131 (1998)							
	C7	Bain <i>et al.</i> , "Ribosome-Mediated Incorporation of a Non-Standard Amino Acid into a Peptide Through Expansion of the Genetic Code" <i>Nature</i> 356: 537-539 (1992)							
	C8	Baldwin <i>et al.</i> , "Enzymes in Synthetic Organic Chemistry" <i>Tetrahedron Organic Chemistry Series</i> 12: 1-40							
	C9	Ban <i>et al.</i> , "The Complete Atomic Structure of the Large Ribosomal Subunit at 2.4 Å Resolution" <i>Science</i> 289: 905-920 (2000)							
	C10	Bannwarth <i>et al.</i> , "A Simple and Effective Chemical Phosphorylation Procedure for Biomolecules" <i>Helv. Chim. Acta</i> 70: 175-186 (1987)							
	C11	Barbas <i>et al.</i> , "Phage Display: A Laboratory Manual" <i>Cold Spring Harbor Laboratory Press</i> New York 736 pages (2001) (copy not enclosed)							
	C12	Barbas <i>et al.</i> , <i>Chem. Int. Ed.</i> Vol. 37, 1998. 2872-2875 Benner Reviews							
	C13	Becker <i>et al.</i> , "Synthesis, <i>Sar</i> and <i>In Vivo</i> Activity of Novel Thienopyridine Sulfonamide Pyrrolidinones as Factor <i>Za</i> Inhibitors" <i>Bioorg. Med. Chem. Lett.</i> 9: 2753-2758 (1999)							
	C14	Berger <i>et al.</i> , "Universal Bases for Hybridization, Replication and Chain Termination" <i>Nucleic Acids Research</i> 28(15): 2911-2914 (2000)							
	C15	Blanco <i>et al.</i> , "A Method for Detecting Protein-DNA Interactions at Sites of Chromatin Replication" <i>Analytical Biochemistry</i> 163: 537-545 (1987)							
	C16	Bogarad <i>et al.</i> , "A Hierarchical Approach to Protein Molecular Evolution" <i>Proc. Natl. Acad. Sci. USA</i> 96: 2591-2595 (1999)							
	C17	Böhler <i>et al.</i> , "Template Switching Between PNA and RNA Oligonucleotides" <i>Nature</i> 376: 578-581 (1995)							
	C18	Bolli <i>et al.</i> , "Pyranosyl-RNA: Chiroselective Self-Assembly of Base Sequences by Ligative Oligomerization of Tetranucleotide-2'3'-Cyclophosphates (with a Commentary Concerning the Origin of Biomolecular Homochirality)" <i>Chem. Biol.</i> 4: 309-320 (1997)							
	C19	Boschelli <i>et al.</i> , "Synthesis of Amphotericin B. 2. Fragment C-D of the Aglycone" <i>Tetrahedron Lett.</i> 26: 5239-5242 (1985)							
	C20	Bostwick <i>et al.</i> , "RPR120844, A Novel, Specific Inhibitor of Coagulation Factor Xa Inhibits Venous Thrombosis in the Rabbit" <i>Thromb Haemost.</i> 81: 157-160 (1999)							
	C21	Brenner <i>et al.</i> , "Encoded Combinatorial Chemistry" <i>Proc. Natl. Acad. Sci.</i> 89: 5381-5383 (1992)							
<b>EXAMINER</b>					<b>DATE CONSIDERED</b>				

<b>FORM PTO - 1449</b>		<b>ATTORNEY DOCKET NO.:</b> LS5-001
<b>INFORMATION DISCLOSURE STATEMENT</b>		<b>APPLICANT(S):</b> Liu <i>et al.</i>
		<b>SERIAL NO.:</b> 10/643,752
		<b>FILING DATE:</b> August 19, 2003 <b>GROUP:</b> 1637
	C22	Brenner <i>et al.</i> , "In Vitro Cloning of Complex Mixtures of DNA on Microbeads: Physical Separation of Differentially Expressed cDNAs" <i>Proc. Natl. Acad. Sci. USA</i> 97(4): 1665-1670 (2000)
	C23	Bresler <i>et al.</i> , "Stability of Peptidyl-tRNA – The Intermediate of Protein Synthesis" <i>Biochimica et Biophysica Acta</i> 155: 465-475 (1968)
	C24	Brooks <i>et al.</i> , "Antiintegrin $\alpha\beta_3$ Blocks Human Breast Cancer Growth and Angiogenesis in Human Skin" <i>J. Clin. Invest.</i> 96: 1815-1822 (1995)
	C25	Brooks <i>et al.</i> , "Disruption of Angiogenesis by PEX, a Noncatalytic Metalloproteinase Fragment with Integrin Binding Activity" <i>Cell</i> 92: 391-400 (1998)
	C26	Brooks <i>et al.</i> , Integrin $\alpha\beta_3$ Antagonists Promote Tumor Regression by Inducing Apoptosis of Angiogenic Blood Vessels" <i>Cell</i> 79: 1157-1164 (1994)
	C27	Bruick <i>et al.</i> , "Template-Directed Ligation of Peptides to Oligonucleotides" <i>Chem. Biol.</i> 3: 49-56 (1996)
	C28	Cadwell <i>et al.</i> , "Randomization of Genes by PCR Mutagenesis" <i>PCR Methods Appl.</i> 2: 28-33 (1992)
	C29	Celewicz <i>et al.</i> , "Mass Spectrometry of Some Derivatives of 5-(Indol-2-yl) Pyrimidine" <i>Pol. J. Chem.</i> 72: 725-734 (1998)
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